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A very large tigress in tall grass : Kanha

— Photo by M. Krishnan



APPEAL

The Wildlife Preservation Society of India is purchasing the present office premises to have a permanent home.

Patrons, Members and Sympathisers are requested to donate generously to enable the society to complete the purchase.

Donations big and small may please be sent to the Wildlife Preservation Society of India, 7, Astley Hall, Dehra Dun, U.P. (India). All donations will be gratefully acknowledged and the names of donors published in Cheetal.

Executive Committee

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Members and Subscribers are requested to note that all yearly subscriptions fall due on 1st of April each year. They are requested to pay in time so that Cheetal may be sent to them regularly.

Change of address should be intimated at the earliest to prevent Cheetal being lost in transit.

Honorary Secretary.

VISIT

"Mundanthurai Game Sanctuary"

in Tirunelveli District

Tamil Nadu, South India

With the formation of Tirunelveli Wildlife Association in 1973, the population of Spotted deer, Sambaur, Wildboar etc. has multiplied in large numbers. Tiger and Panther can also be seen in this Sanctuary.

For details please write to :

The Secretary,
Tirunelveli Wildlife Association,
Sankarnagar—627 357,
Tirunelveli District,
Tamil Nadu.

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Vol. XIX

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SYMPOSIUM ON TIGER

Postponed a number of times the proposed International Symposium on Tiger, organised by the Wildlife organisation of the Government of India is now to be held at New Delhi from 11th to 13 May 1978.

Expectations are that some new light will be thrown on the biology and behaviour of tiger and management of Project Tiger areas and consensus will be evolved for saving our National Animal—the tiger in Project Tiger areas in particular and other tiger areas in general.

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It is often pointed out by Wildlife experts—Indian and Foreign that the basic necessity for Wildlife conservation is the study and research in the breeding biology, behaviour, habitat, population dynamics and census etc. All this is very expensive and time consuming. While accepting the above there is another opinion that in India the need of the hour is effective protection of Wildlife against rampant destruction that is prevalent. Within living memory the Government of India and the former Maharajas and landlords could effectively protect wildlife and its habitat by strict enforcement of protective measures and not because of research on wildlife. Research can wait and take its own time. Unless this is done we may be locking the stable after the horse has run away.

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The Wildlife Preservation Society of India has for more than a decade been pressing the Government of Uttar Pradesh through the Uttar Pradesh Wild Life Board to declare Nanda Devi Sanctuary as a Nature Reserve at the earliest to save the flora and fauna of the area for posterity. It will be the only Nature Reserve in India and a unique place for viewing Himalayan fauna and flora. The creation of this Nature Reserve will not clash with the interests of the people as it is not inhabited. Thousands of Bharal - the Blue wild sheep—graze there during summer with Musk Deer and the rare snow leopard in often seen. Nineteen snow covered peaks overlook the basin. Recently the World Wildlife Fund (India) has also recommended the declaration of the area as a Nature Reserve.

* * * *

The Indian Board for Wildlife met recently after a break of nearly two years under its new Chairman Mr. H.M. Patel (Finance Minister, India), and made some very important recommendations which will go far in helping preserve the fast vanishing Wildlife national heritage of India. The Board is being reconstituted. It was announced that the Board will be smaller and meet more often—two or three times a year.

The Wildlife Preservation Society felicitated Shri H.M. Patel on his becoming chairman of Indian Board for Wildlife at a function at the India International Centre in July when a scientific Wildlife film was also screened. The Society is grateful to Shri Patel for acceding to the request of the President of the Society to become the Honorary Patron of the Society. It is hoped the Society will prosper under his patronage and serve the cause of Wildlife Conservation better.

* * * *

Pressure is mounting for the allotment of Forest land for cultivation, for resettlement of displaced persons, for hydro-electric projects, for industry and roads and the popular Governments in the States find it difficult to resist the pressure. But let them not forget that the country is already deficient in forest area and any further reduction will be at the cost of healthy environment and Wildlife.

Wildlife in Bandhavgarh National Park

By

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Introduction

During the course of investigation on the systematics and ecology of artiodactyla (Class: Mammalia) of central India, the author visited Bandhavgarh National Park, Shahdol district, Madhya Pradesh in February-March, 1976 as leader of the survey party of Central Regional Station, Zoological Survey of India, Jabalpur. The other object of the survey was the preparation of an exhaustive faunal list with ecological observations wherever possible. An attempt was also made to identify factors limiting the wildlife population and to suggest improvement of the park. The information given in the unpublished management plan of the Bandhavgarh National Park regarding geology, water supply, flora etc. has been freely drawn upon.

Acknowledgements

Thanks are due to the Director, Zoological Survey of India and Officer-in-Charge, Central Regional Station for the facilities. I am grateful to my colleagues Sharwashi B.S. Gurm, Zoological Assistant, A. Paul, Photographer and S.K. Ghosh, Junior Taxidermist who have helped me in the survey work. The co-operation and help in various ways were provided by the Divisional Forest Officer, in-charge Bandhavgarh National Park were unforgettable.

Description of the Bandhavgarh National Park

The Bandhavgarh National Park lies between lat. $23^{\circ}36'30''$ and $23^{\circ}42'30''$ N. and long. $80^{\circ}57'30''$ and $81^{\circ}6'15''$ E. and comes under the jurisdiction of Umaria Forest Division of Shahdol district and was constituted as national park in the year 1968 (text. fig. 1). The park was private shikar reserve of Ex Maharaja of Rewa in the past and is surrounded by forest blocks of Tala Range. It is more or less rectangular in shape and has an area of 105 square kilometres ranging in altitude from 440.00 metres in the valleys to 811.40 metres on the highest ridge top. The area consists of many hills and hillocks of varying sizes interspersed with large number of varying sized valleys. The ground is undulating. The hill tops are flat. The central hill is largest with 281.25 square hectares flat plateau. The sides of this plateau are practically vertical and difficult to climb, making the plateau a natural fort, which is still under the control of Ex Maharaja of Rewa. The lower portion of valleys are grassy meadows locally called *Bah*. Most of these *Bahs* are marshy land with seepages from ground.

Geology: The soft felspathic sandstone of medium to coarse texture of supra-barakars is the main geological formation of the park. In this rock rounded quartzite pebbles are embedded in soft sandy matrix. The beds of rivers and nalas are sandy. The soil is brownish red or grey in colour.

Water supply: The park falls under the catchment area of river Sone with two perennial nalas, viz., the Charanganga and the Damnar, the former originates inside the park. The other important nalas which are seasonal but retain water in form of pools are the Chachahi, the Bhadar and the Chamkuli. A few perennial tanks exists in the park. The mean annual rain fall is 1173 mm.

Flora: Forest is tropical moist deciduous. It can be divided into three zones viz. sal forest having more than 20% sal trees in low undulating and plain tracks. The sal Forest is spread in about 57% area of the park. The common associates of sal are *Saj*, *Dhaora*, *Tinsa*, *Khair* etc. The sal forest leads into mixed forest on the upper slopes. The mixed forest is spread in about 35% area of the park. The common trees in the mixed forest are *Salai*, *Saj*, *Dhobin*, *Saja* etc. The rest of the area of the park is mainly grassland locally called as *Bah* with bamboo clumps scattered every where on hill slopes. The common grasses are *Kans*, *Nal*, *Chhir* etc.

Limiting Factors

Following are some of the limiting factors which appears to have effect on the population dynamics of the wildlife. The basic minimum needs for the wildlife management are water, food and shelter and if any one of them is in short supply, the population is bound to suffer.

Water and food: Through there are a few perennial nalas and pools the water scarcity is felt even in February-March. The quantity of water in nalas is not sufficient and the nalas are not spread in all parts of the park. Most of the pools are not deep enough for swimming or wallowing of the animals. There are at present only two perennial tanks. The one is old and is close to a forest village at the periphery of the park. The second one created recently by constructing a bund is on Umaria-Tala P.W.D. road inside the park. Animals become easy victim of the poachers at these two ponds.

Although the food is in plenty for both the carnivores and the herbivores and the carrying capacity of the park appears to have larger number of animals than what they are having now but due to the water scarcity in most of the parts, it is difficult for them to eat at one place and walk a number of kilometres to drink water and again come back to feed. The carnivores specially the tiger need large quantity of water specially during summer months and it is known that after eating a little of the animal the tiger moves for water but fails to return to the kill and when he is again hungry, he kills another

animal. This way there is more loss to the prey population of the park. The water scarcity continues for 4-5 months in the year. Due to this scarcity the animals are reported to congregate in large number around water holes, where they fall easy victim to poachers and predators. It is therefore necessary to provide large number of storage tanks which may be made by impounding water in nalas at suitable places.

Poaching: Because of insufficient staff and the situation of the villages inside the park and on its periphery, it appears that poaching has not yet been eliminated. During my stay in the park, atleast two poaching cases were reported in the park. In one case a porcupine was killed by the villagers and in other case a full sized male blue-bull was shot dead by unknown poacher.

P.W.D. Road: The one metalled and one fair weathered P.W.D. road passing through the park creates lot of disturbance and provide opportunity for poaching of wildlife. Due to these roads, the animals do not move and spread uniformly.

Suggestions for Improvement of the Park

1. All the villages should be shifted from the park and they can be resettled beyond the buffer zone of the park.
2. At every village, a strong patrolling and watch party of forest staff may be stationed possibly with wireless sets for checking and rounding up of poachers.
3. Anicuts should be constructed at suitable places to store water during summer months. Planning should be such that water will be available in every part of the park throughout the year.
4. Another P.W.D. metalled road may be made avoiding the territory of the park and its buffer zone to avoid disturbance and poaching of wildlife. The fair weather P.W.D. road should be closed down and handed over to the forest authorities.
5. In order to check speeding of the automobiles, there should be speed breakers on all the roads. This will check speeding poachers.
6. More artificial salt licks should be created at suitable places for the uniform spreading of animals. Food substitute e.g. mohua flower, maize etc., may be provided at these places.
7. *Bahs* may be developed as good grazing grounds for the herbivores by providing artificial salt licks and substitute food. If water can be made available in these *Bahs* or close by, at the seasons, then these *Bahs* will be ideal abode for wildlife.
8. All round the national park and buffer zone boundary, wide ditches should be dug out to prevent the vehicles from entering the buffer zone and the national park proper except from authorised entries.

9. Patrolling parties should keep an eye on events. They should visit the areas from where poaching is possible.
10. Park staff may be provided with modern patrol and fire fighting facilities.
11. Fire lines should be cut instead of burning the grasses. Fire watchers may be increased in summer.
12. No. hunting dogs should be allowed in the villages near the park.
13. The rest houses should not have garden plants. Suitable wild plants from inside the park may be planted in premises of the rest house.
14. There should be a properly equipped research laboratory attached to the park.
15. There should also be proper library facility for visitors and research staff.
16. A list of species of animals and plants should be prepared and kept ready for reference in the park.

Fauna

Except for a list of mammals of Bandhavgarh National Park (Sinha in press) no published record of fauna are available. The following are the list of birds and mammals, which has been prepared during the survey of the park in February-March, 1976. Because of absence of shooting permission inside the national park, most of the identification is based on sight records, which was supplemented by the list of birds and mammals given in the management plan of the national park (Dixit, MSS). The other smaller animals collected during the survey are under identification. The classification in this paper has been followed after Ripley (1961) for birds and Ellerman and Morrison Scott (1951) for mammals.

Phylum Chordata

Class Aves

Subclass Neornithes

Order Podicipediformes

I. Family Podicipedidae

1. *Podiceps ruficollis* (Pallas). The Little Grebe

Order Ciconiformes

II. Family Ardeidae

2. *Ardeola grayii* (Sykes). The Pond Heron or Paddybird
3. *Bubulcus ibis* (Linnaeus). The Cattle Egret

III. Family Ciconiidae

4. *Leptoptilos javanicus* (Horsfield). The Lesser Adjutant.

Order Anseriformes

IV. Family Anatidae

5. *Dendrocygna javanica* (Horsfield). The Lesser Whistling Teal, Tree Duck
6. *Tadorna ferruginea* (Pallas). The Ruddy Sheld-duck, Brahminy Duck
7. *Anas crecca* Linnaeus. The Common Teal.
8. *Nettion coromandelianus* (Gmelin). The Cotton Teal or Quacky-duck
9. *Sarkidiornis melanotos* (Pennant). The Nukhta, Comb Duck

Order Falconiformes

V. Family Accipitridae

10. *Haliastur indus* (Boddaert). The Brahminy Kite
11. *Accipiter badius* (Gmelin). The Shikra
12. *Gyps bengalensis* (Gmelin). The Indian Whitebacked Vulture
13. *Neophron percnopterus* (Linnaeus). The Egyptian or Scavenger Vulture
14. *Circus gallicus* (Gmelin). The Short-toed Eagle

VI. Family Falconidae

15. *Falco tinnunculus* Linnaeus. The Kestrel

Order Galliformes

VII. Family Phasianidae

16. *Francolinus francolinus* (Linnaeus). The Black Partridge
17. *Francolinus pictus* (Jardine & Shelby). The Painted Partridge
18. *Francolinus pondicerianus* (Gmelin). The Grey Partridge
19. *Coturnix coromandelica* (Gmelin). The Blackbreasted or Rain Quail
20. *Perdicula asiatica* (Latham). The Jungle Bush Quail
21. *Gallus gallus* (Linnaeus). The Red Junglefowl
22. *Gallus sonneratii* Temminck. The Grey or Sonnerat's Junglefowl
23. *Pavo cristatus* Linnaeus. The Common Peafowl

Order Gruiformes

VIII. Family Gruidae

24. *Grus antigone* (Linnaeus). The Saras Crane

Order Charadriiformes

IX. Family Charadriidae

25. *Vanellus indicus* (Boddaert). The Redwattled Lapwing

26. *Capella gallinago* (Linnaeus). The Fantail Snipe

Order Columbiformes

X. Family Pteroclididae

27. *Pterocles exustus* Temminck. The Indian Sandgrouse

XI. Family Columbidae

28. *Treron phoenicoptera* (Latham). The Green Pigeon

29. *Columba livia* Gmelin. The Blue Rock Pigeon

30. *Streptopelia decaocto* (Frisvaldszky). The Indian Ring Dove or Collared Turtle Dove

31. *Streptopelia chinensis* (Scopoli). The Spotted Dove

Order Psittaciformes

XII. Family Psittacidae

32. *Psittacula eupatria* (Linnaeus). The Large Indian or Alexandrine, Parakeet

33. *Psittacula krameri* (Scopoli). The Roseringed Parakeet

Order Cuculiformes

XIII. Family Cuculidae

34. *Cuculus varius* Vahl. The Common Hawk-Cuckoo, Brain-fever Bird

35. *Eudynamis scolopacea* (Linnaeus). The Koel

Order Strigiformes

XIV. Family Strigidae

36. *Bubo bubo* (Linnaeus). The Eagle-Owl, Great Horned Owl

Order Caprimulgiformes

XV. Family Caprimulgidae

37. *Caprimulgus asiaticus* Latham. The Common Indian nightjar

Order Apodiformes

XVI. Family Apodidae

38. *Apus affinis* (J.E. Gray). The House Swift

39. *Cypsiurus parvus* (Lichtenstein). The Palm Swift

40. *Hemiprocne longipennis* (Rafinesque). The Crested Swift

Order Coraciiformes

XVII. Family Alcedinidae

41. *Alcedo atthis* (Linnaeus). The Common Kingfisher

XVIII. Family Coraciidae

42. *Coracias benghalensis* (Linnaeus). The Indian Roller or Blue Jay

XIX. Family Upupidae

43. *Upapa epops* Linnaeus. The Hoopoe, Hudhud

XX. Family Bucerotidae

44. *Tockus birestris* (Scopoli). The Common Grey Hornbill

Order Piciformes

XXI. Family Capitonidae

45. *Megalaima zeylanica* (Gmelin). The Green Barbet
 46. *Megalaima haemacephala* (P.L.S. Muller). The Crimson breasted Barbet, Copper Smith

XXII. Family Picidae

47. *Dinopium benghalensis* (Linnaeus). The Lesser Goldenbacked Woodpecker
 48. *Dendrocopos nanus* (Vigors). The Pigmy Woodpecker

Order Passeriformes

XXIII. Family Hirundinidae

49. *Hirundo rusica* Linnaeus. The Swallow

XXIII. Family Oriolidae

50. *Oriolus oriolus* (Linnaeus). The Golden Oriole
 51. *Oriolus xanthornus* (Linnaeus). The Blackheaded Oriole

XXV. Family Dicruridae

52. *Dicrurus adsimilis* (Bechstein). The Black Drongo or King Crow
 53. *Dicrurus caerulescens* (Linnaeus). The Whitebellied Drongo
 54. *Dicrurus paradiseus* (Linnaeus). The Greater Racket-tailed Drongo

XXVI. Family Sturnidae

55. *Acridotheres tristis* (Linnaeus). The Common Myna

XXVII. Family Corvidae

56. *Corvus splendens* Vieillot. The House Crow
 57. *Corvus macrorhynchos* Wagler. The Jungle Crow

XXVIII. Family Campephagidae

58. *Coracina novaehollandiae* (Gmelin). The Large Cuckoo-Shrike
 59. *Pericrocotus flammeus* (Forster). The Scarlet Minivet
 60. *Pericrocotus erythropygius* (Jerdon). The Whitebellied Minivet

XXIX. Family Pycnonotidae

61. *Pycnonotus leucogenys* (Gray). The Whitecheeked Bulbul

XXX. Family Muscicapidae

62. *Orthotomus sutorius* (Pennant). The Tailor Bird
63. *Copsychus saularis* (Linnaeus). The Magpie-Robin or Dhyal Thrush.
64. *Phoenicurus ochruros* (S.G. Gmelin). The Black Redstart

XXXI. Family Motacillidae

65. *Anthus trivialis* (Linnaeus). The Tree Pipit
66. *Motacilla flava* Linnaeus. The Yellow Wagtail
67. *Motacilla citreola* Pallas. The Yellowheaded Wagtail
68. *Motacilla alba* Linnaeus. The Pied, or White, Wagtail
69. *Motacilla maderaspatensis* Gmelin. The Large Pied Wagtail

XXXII. Family Nectariniidae

70. *Nectarinia asiatica* (Latham). The Purple Sunbird

XXXIII. Family Ploceidae

71. *Passer domesticus* (Linnaeus). The House Sparrow
72. *Ploceus philippinus* (Linnaeus). The Baya

Class Mammalia

Order Chiroptera

I. Family Megadermatidae

1. *Megaderma lyra* Geoffroy. The Indian False Vampire

II. Family Vespertilionidae

2. *Scotophilus heathi* Horsfield. The Greater Yellow Bat.
3. *Pipistrellus coromandra* Gray. The Indian Pipistrella

III. Family Rhinolophidae

4. *Rhinolophus lepidus* Blyth

Order Primates

IV. Family Cercopithecidae

5. *Macaca mulatta* Zimmermann. The Rhesus Macaque

V. Family Colobidae

6. *Presbytis entellus* Dufresne. The Common Langur

Order Carnivora

VI. Family Canidae

7. *Canis aureus* Linnaeus. The Asiatic Jackal
8. *Vulpes bengalensis* Shaw. The Bengal Fox
9. *Cuon alpinus* Pallas. The Indian Wild dog

VII. Family Ursidae

10. *Melursus ursinus* Shaw. The Sloth Bear

VIII. Family Mustelidae

11. *Mellivora capensis* Schreber. The Ratel

IX. Family Viverridae

12. *Viverricula indica* Desmarest. The Small Indian Civet
13. *Herpestes aurofunicatus* Hodgson. The Small Indian Mongoose

X. Family Hyaenidae

14. *Hyaena hyaena* Linnaeus. The Striped Hyaena

XI. Family Felidae

15. *Felis chaus* Guldenstaedt. The Jungle Cat
16. *Panthera pardus* Linnaeus. The Leopard
17. *Panthera tigris* Linnaeus. The Tiger

Order Artiodactyla

XII. Family Suidae

18. *Sus scrofa* Linnaeus. The Wild Boar

XIII. Family Cervidae

19. *Muntiacus muntjak* Zimmermann. The Indian Muntjak (Barking Deer)
20. *Axis axis* Erxleben. The Chital
21. *Cervus unicolor* Kerr. The Sambar

XIV. Family Bovidae

22. *Tetracerus quadricornis* Blainville. The Four Horned Antelope.
23. *Boselaphus tragocamelus* Pallas. The Blue Bull
24. *Bos gaurus* H. Smith. The Gaur
25. *Antelope cervicapra* Linnaeus. The Blackbuck
26. *Gazella gazella* Pallas. The Chinkara

Order Lagomorpha

XV. Family Leporidae

27. *Lepus nigricollis* Cuvier. The Indian Hare

Order Rodentia

XVI. Family Sciuridae

28. *Funambulus palmarum* Linnaeus. The Indian Palm Squirrel
29. *Funambulus pennanti* Wroughton. The Northern Palm Squirrel

XVII. Family Hystricidae

30. *Hystrix indica* Kerr. The Indian Crested Porcupine

XVIII. Family Muridae

31. *Rattus blanfordi* Thomas. The Blanford's Rat
 32. *Rattus rattus* Linnaeus. The House Rat
 33. *Mus* Spp. The Mouse
 34. *Bandicota bengalensis* Gray & Hardwicks. The Lesser Bandicoot Rat "Indian Mole Rat"

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Some Thoughts on 'People and Forests'

P.D. STRACEY, I.F.S. (RETD.)

I—Some Myths and Counter-Myths :

There is a considerable degree of ignorance in regard to the correct facts concerning 'people and forests', and also an amount of wishful thinking, which should be dispelled.

Take first the common urban or semi-urban dweller going to the forest for the first, second or third time. He calls every 'jungle' he meets a 'forest' and has grossly wrong ideas of the real value or worth of what he sees. Many Ministers fall into this category, and tend to paint over-bright pictures, of forests and wildlife, for their audiences. At the same time the tendency to look on all foresters as the true enemies of the forest is rather prevalent. Nothing further from the truth !

Give a man a dao and watch what he will do with it: he will straight away hack at the tree that he passes! Some foresters will do the same but not as often as non-foresters. And the nearer the man to the forest environment the more often he will hack at a tree in passing.

Now take the forest dweller—I prefer not to call him a 'tribal' even if he is one. Apart from hacking at the tree that he passes he has no real appreciation of the true worth of a forest or of the forest environment. Even his instincts do not make him the true protector of forests that some euphorists paint him to be.

—his 'sacred groves are in most cases things of the past, destroyed or being destroyed under the pressures of living and through ignorance;

—he might 'worship nature' in his own way but that does not prevent him from burning the jungles, often needlessly;

—he has no taboos in the matter of destroying wildlife; on the other hand he stands on his ancestral rights to perform his ritual hunts, or fishing battues, in which every living creature is killed or collected;

—he *does* cause soil erosion through his 'way of life', shifting cultivation, or through over-grazing and burning, in spite what Uppal and Chaturvedi have said;

Note :—I had the task of conducting them on the part of their Assam tour in 1950, so I speak from knowledge. I showed them the Dhansiri river which drains the western Naga hills and told them that it was within living memory that boats could ply on it, and now it is filled with sand. I told them of the Pekua river in Goalpara forest division which within living memory could allow an elephant to be taken under the bridge but which in 1930, when I joined there as a young officer, had swallowed the bridge with sand. The Wattle which was recommended for reclaiming the jhums is not a coppicer and has a matted root system, both of which make it unsuitable for growing in jhum fields that have to be cultivated every few years; though it is a valuable tree for the hills because of its bark containing tannin.

—he does not like monoculture because such forests/plantations do not provide him with the varied requirements of his daily life—rice pounders, cartwheel hubs, spokes and rims, shafts for his cart and so on nor do such forests provide him with the wild animals and birds he loves to hunt for food (and I don't blame him).

—he is suspicious of authority, as represented by the Forest Departments and naturally so because he must take what he needs for his daily life (and something more) but is not allowed to do so legally;

—he is dimly aware that the forests have been taken away from him to form Reserved and Protected Forests, which might be the reason why he persists in taking what he wants in spite of being warned to the contrary.

Now take the Forest Contractor (and his employer, the Forest Department):

—he is blamed for causing soil erosion by his extraction methods, when he has no option but to slide logs downhill sometimes;

—he is suspected of stealing trees he is not entitled to, which is quite possible if he is not supervised strictly or with a venal supervisor who connives;

—he naturally expects to be allowed to take all that he is entitled to, even the hollow trees marked for him and which would make such good homes for owls and other birds that are the 'friends of the forest':

—the Forest Departments are under pressure to produce the maximum possible revenue, so they sell even the bark of the felled trees and the branches and leaves which would make such good mulch on the forest floor to retain moisture;

—by the same token they have no time to consider wildlife, the 'junior partner' in the forest complex, or if they do it is only as an enemy of forests;

—by the nature of his work the average forester is least concerned at what happens to his timber once it leaves his hands, nor of the number of hands it passes through before it reaches the consumer;

—by tradition and training the average forester proceeds rather mechanically in his profession and career;

11—Now how can we remedy this state of affairs, which is of our own making?

—not by returning the forests to the tribal or forest dweller, as has been sometimes advocated, but by finding means of 'sharing' with him;

—not by pampering him on the one hand or by treating him purely as a source of labour on the other, but by encouraging him as a custodian of the forests;

—not by writing him off but by trying to raise his economic condition so that he is no longer completely dependent on the forests;

—not by always bringing in outsiders to work the forests but by intensive efforts to attract him to do so, with the aid of training, improved tools and equipment and suitable clothing;

—not by encouraging only the bright boys to go to college but by correct education in the primary schools, aimed at his particular psychology and environment;

—not by pressurising our foresters to produce more and take on more but by encouraging them to use their initiative and resourcefulness;

—not by doing clear-felling of trees on steep slopes (thereby encouraging erosion) to subserve skyline cranes when light markings and pipelines to extract woodchips will protect the soil;

—not by adhering to time-honoured practices, like 'thinnings' based on the theory of Dominance' but by 'spaced thinnings', aimed at freeing the crowns of trees rather than removing trees—thus retaining the maximum basal area of timber (most important when dealing with limited forests);

—not only by growing trees in soulless 'monoculture' but by encouraging mixed crops whenever possible by in-filling plantations with other species, by 'minority thinnings' to retain scarce species, and by growing two-storied' two-rotation plantation crops of fast growing softwood and slow growing hardwoods;

—by subsidising removal of grass (in the form of hay) and fuel from forests for export to distant consuming centres, through reduced rail and road fares;

—by protecting the forests more than at present from fire and grazing ?

NOTE:- The last-named seems a vain hope' for obvious reasons.

III-And how can we ensure success with our 'social forestry' programmes ?

—by reconsidering our euphoric thinking that the farmer is willing and capable of growing trees on his lands, in the light of his past performance;

—by going all-out instead to bring all waste Government lands under trees and acquiring lands where necessary for the purpose;

—by paying labour engaged on forest operations on piece-work basis in place of a daily-wage basis, to encourage greater productivity;

—by improving and intensifying our programmes of eradicating shifting cultivation, and by simultaneously trying to 'rejuvenate' shifting cultivation lands by encouraging the jhumiar to grow quick-growing, coppicing species for production of more ash-fertiliser.

Extension of Distributional Ranges of Some Rare South Indian Bats.

By

H. KHAJURIA

During a thorough survey of bats found in Jabalpur District, Madhya Pradesh, four rare bats proved to be new records from the area. Their distributional ranges have been extended considerably. The detailed particulars of specimens collected along with notes on their habitat, colouration and measurements are provided here. The study emphasizes the importance of intensive survey of small selected areas.

Family Emballonuridae.

1. *Taphozous theobaldi secatus* Thomas.

Material collected.—

♂—1 ad., 20 Feb., '64; 1 ad. 7 May, '63; 3 ad., 19 May, '64.

1. s. ad., 26 May, '65; 1 ad., 12 Sept., '68; all from Richhai.

♂ 3 ad., Richhai 7 May, '63; 1 s. ad., Richhai, 12 Sept., '68. Unsexed newly born young 3, 19 May, '64 and 26 May, '65.

This bat has so far been recorded from only two localities in India, i.e., Asirgarh (Nimar), two specimens, and Krishnapur caves near Goa border, 7 specimens (Brosset, *J. Bombay nat. Hist. Soc.* 59 (1), p. 49). The present specimens were collected from caves under huge granite boulders on the outskirts of Jabalpur city. This extends the range further north. The species is rare in the area since on intensive collection within 70 km. radius of Jabalpur city has revealed on one colony, the exact size of which could not be estimated because of inaccessibility of several points of the habitat and presence in very large number of the allied species, *T.m. melenopogon* Temminck. Other species occasionally found in those caves are *Rhinopoma h. hardwickei* Gray, *Hipposideros cineraceus durgadasi* Khajuria, and *Rhinolophus l. lepidus* Blyth. Brosset recorded it in association with *Rousettus leschenaulti* Desmarest.

The colour is a shade or tint of brown with a reddish tinge in adult specimens but is noticeably darker in younger specimens. Ventral surface is slightly paler. There is a whitish basal band to each hair. In older specimens brownish beard is present in males as pointed out by Brosset.

Measurements.—see table I.

Family Rhinolophidae.

Subfamily Hipposiderinae.

2. *Hipposideros lankadiva unitus* Andersen.

Material.—5 ad. ♂ and 8 ad. ♀, Ganjtal.

Village, near Sihora, Jabalpur District. M.P. May, June, Sept. 1974-75.

This rare subspecies appears to be recorded in Madhya Pradesh only from Hoshangabad District (type locality) and possibly from Mander (Brosset, *J. Bombay nat. Hist. Soc.* 59 (2), p.62(3)). The present specimens were collected from colony of about 150 individuals inhabiting a temple under active worship and situated near a large perennial village tank with cultivated fields. It lives with a large colony (about 500 individuals) of *Taphazous m. melanonogon Temminck*.

The colour is various shade of brown with underside slightly paler and with bases of hair distinctly paler than tips.

Measurements:—table II.

3. **Myotis peshwa**. Thomas (Family Vespertilionidae, Subfamily Vespertilioninae.

Material collected.—♂: 1 ad., Jabalpur city, 20 Dec. '60. ♀: 1 ad., Jabalpur city, 20 Dec. '60.

The species is known from Poona and Elephanta, Bombay State (Brosset, *J. Bombay nat. Hist. Soc.* 59 (3), 717, 1962). The specimens were collected from the branches of palmyra palms on 20.12.60. Some more specimens were also reported to be present but could not be collected. Brosset's single specimen was obtained on 19.3.61 at Elephanta. The species has not been met with again in Jabalpur District.

On the ventral side the hairs have longer whitish tips. There is no light rufous on the ventral aspects as mentioned by Brosset. The fur includes black hair some of which have paler tips interspersed with some white hair. The length of the fur of an adult male collected on 20th December measures up to 8 mm. in length.

Measurements:—table III.

4. **Pipistrellus ceylonicus indicus** Dobson.

(Synonym: *P. ceylonicus chrysothrix* Wroughton Brosset)

Material collected. ♂: 1 ad., Jabalpur city, 5th Nov., '63. ♀: 1 ad., Jabalpur city, 5th Nov., '63.

The colour under dorsal surface shows rufous ting here and there. The hair on ventral surface and in some specimens even on dorsal surface has silvery tip. The colour of individual hair resembles that of *P. m. mimus*. The length of the fur of an adult male collected on 5th November measures up to 6 mm. in length.

Ellerman and Morrison-Scott (*Checklistt Parl. Indian Mammals*, 1951, p. 167) gave the distribution as "Southern Peninsular India". The northern limits of the range in central India as shown by Brosset's collection (*J. Bombay nat. Hist. Soc.* 59(3), p. 723) are Bhuj, Ahmadabad and Chikalda. It is appearatly common in Nagpur District.

Measurements:—table III.

Table I
Measurements of *Taphozous theobaldi secatus* from Jabalpur District
a. External measurements.*

	Males				Females	
f	72.0	72.0	72.5	72.0	76.0	72.0
p (pmt)	5.0	6.5	7.0	5.0	4.0	4.0
p (phl)	4.0	8.5	9.0	5.0	4.5	4.5
d2 (mt)	61.5	59.5	61.5	61.0	62.0	62.0
d3 (mt)	64.5	63.0	66.5	64.0	65.0	65.5
p3 (phl)	23.0	23.0	23.0	21.5	23.0	22.0
d4 (mt)	53.5	51.5	54.0	51.0	55.0	53.5
d4 (phl)	14.5	14.5	14.5	14.0	15.0	14.5
d2 (mt)	41.0	42.0	43.5	41.0	43.0	40.5
d5 (phl)	15.0	14.5	15.0	15.5	15.0	13.0
ft	14.0	16.0	16.5	15.0	16.0	15.0
t	28.0	27.0	28.5	28.0	27.0	27.0
tl	31.5	28.5	32.0	29.5	31.0	28.5
ear	—	21.5	23.0	—	—	—
wt	35.0	36.0	22.0	32.0	30.0	35.0

Granal measurements of *Taphozous theobaldi secatus*.

b. Granal measurement.

	Males		Females	
Condylbasal length	22.6	22.0	22.1	23.0
Zygomatinwidth	14.0	13.2	13.6	14.0
Mandible	18.5	17.8	18.0	18.6
Upper Tooth row	10.1	10.0	9.4	10.2
Lower tooth row	11.2	11.0	11.0	12.0

*Explanation of abbreviations used for external measurements:

Body

d2(mt), metacarpal of second digit; d2(phl), first phalanx of second digit;
 d2(ph2), second phalanx of second digit; d3 (mt), metacarpal of third digit;
 d3 (phl), first phalanx of third digit; d4 (mt) metacarpal of fourth digit;
 d4 (phl), first phalanx of fourth digit; d5 (mt), metacarpal of fifth digit;
 d5 (phl), first phalanx of fifth digit; f, forearm; ft, foot; p, pollex;
 p (mt), metacarpal of pollex; p (phl), first phalanx; of pollex; t, tibia.

Table II
Measurements of *Hipposideros lankadiva unitus* Andersen.

a. **External Measurements.**

	Males		Females
f	88.5	82.5	83.0
d2(mt)	—	56.0	56.0
d3(mt)	57.0	56.0	59.0
d3(ph1)	28.0	28.0	27.0
d4(mt)	60.5	53.0	57.0
d4(ph1)	21.0	21.0	20.5
d5(mt)	53.9	52.0	53.0
d5(ph1)	21.5	22.0	21.5
t	34.5	33.5	31.0

b. **Cranial Measurements.**

Condyllo-basal length	38.0	27.0	28.0
Zygomatic-width	18.0	17.0	18.0
Mandible	22.0	22.0	22.0
Upper Tooth row	13.0	13.0	12.5
Lower Tooth row	14.0	15.0	14.0

Table III

Measurements of *Myotis peshwa* and *Pipistrellus ceylonicus indicus* from Jabalpur District.

a. External Measurements.

	<i>M. peshwa</i>		<i>P.c. indicus</i>					
	Male	Female	Males			Females		
f	36.5	38.5	37.0	37.0	38.5	38.0	37.0	37.5
p(mt)	5.0	4.0	—	—	—	—	—	—
p(ph1)	6.0	5.5	—	—	—	—	—	—
d2(mt)	34.5	34.0	35.0	35.0	35.0	36.5	35.5	36.0
d2(ph1)	3.5	5.0	—	—	—	—	—	—
d3(mt)	36.0	36.5	36.0	36.0	36.0	37.0	36.0	37.0
d3(ph1)	15.5	16.0	13.0	13.5	14.0	14.5	15.0	14.0
d4(mt)	34.5	35.0	34.0	36.0	36.0	37.0	36.0	36.0
d4(ph1)	11.0	11.5	14.0	12.5	13.5	13.0	13.5	13.0
d5(mt)	33.5	34.0	33.0	33.5	34.5	34.5	34.5	33.0
d5(ph1)	10.0	—	9.0	8.0	8.0	8.0	8.5	8.0
ft	8.5	9.5	7.0	7.0	6.0	6.5	6.5	8.0
t	18.5	17.0	14.0	14.0	14.0	15.0	14.0	15.0
tl	38.0	37.5	34.5	—	37.5	37.5	36.0	37.5

b. Cranial Measurements.

Condylobasal length	14.0	13.3	14.0	14.2	14.0	14.0	14.0	14.0
Zygomatic width	—	8.5	—	—	9.0	9.0	—	9.4
Mandible	11.2	11.0	11.0	11.2	11.1	11.0	11.0	—
Upper Tooth row	5.6	5.5	5.3	5.4	5.5	5.4	5.5	5.5
Lower Tooth row	6.2	6.0	6.0	6.0	6.0	6.2	6.0	6.0

Animal Communication System

By

MOHAMED OSMAN

In the world of wildlife, and animals specially, communication is generally by means of sounds, movements, as well as the stimuli of chemical signals which in the lower vertebrates such as insects mainly, produces particular responses. Comparing these to man's method of communication, we see that human beings utter words that deliver some message.

Contrastingly, we find that in the animal system, a message is conveyed through the waggle dance of a bee giving indication of a target or some source of food supply for the entire hive. This may be called communication through a set of particular movements. In moths, information is conveyed by means of a chemical sex attractant. The attractant thus given off is picked up through sensory hairs by the male moth's antennae which acts as a guide for it to home in on the female. In all such cases where insects are involved, chemical signals appear to produce a particular response.

However field observations compel me to believe that in the case of birds, and also mammals, messages are distinguished in the way the signals are delivered from time to time. While observing Shrikes "*LANIUS excubitor*" I came to the conclusion that they could very easily discriminate a neighbour's call from that of a stranger's. I have seen that the call of a neighbouring shrike would produce in another shrike, a mild reaction of what I may call mixed feelings, eliciting at the most an exchange of sharp quips in reply. However the call of a stranger in the vicinity (without it even showing itself) would immediately produce an aggressive response, and it is not uncommon, under the circumstances, for two or three neighbouring shrikes to jointly attack and chase the interloper from their hunting territory. This is a clear indication that vocal tones can be recognized by some birds.

The following further strengthens this belief. In community parrot nesting sites, where the screech and clamour of hundreds of these vociferous birds simply rend the air, this ability to differentiate individual sounds is most markedly brought to notice. Here it is seen that even very young birds quickly learn to distinguish the noise made by their parents and will in response loudly call out to them when any one of these is heard. In spite of the chorus of screeching birds all round, the chicks remain silent till they hear their parents making for the nest. Naturally all this indicates a high degree of selectivity in the hearing of these birds.

Sitting in my observation post in some parrot breeding colony and listening to the awful din made by the birds, I have always been held in thrall by the display of this quality in

fledgling parrots. There would be a nest not far from where I would be positioned. Irrespective of the tremendous noise of scores of birds as they would enter the colony with feed for the young, and the clamour of chicks as they would welcome their respective parents, a particular nest would be silent till all of a sudden, for apparently no outward reason the young ones in it would begin to scream. This would also be a signal for me to look up and around, and sure enough I would shortly be able to discern the faint outline of a parrot crying and flying out of the sky towards the nest in the tree which had so suddenly woken up to life. It would have been absolutely impossible for the young birds to have seen their parent arriving since the nest lay in a deep hollow inside the tree trunk. The only way the chicks could have got wind of the parent bird's arrival would of course be by the sounds uttered by the incoming parent as it got within hearing distance.

Some birds will utter different calls to convey a variety of meanings. The Indian Hawk Eagle "SPIZAETUS CIRRHATUS" is undoubtedly one of the noisiest eagle in existence, and yet this very bird is capable of subtly altering its sharp and strident screams to such whispering low tones that at times makes the utterer unidentifiable, if not totally inaudible. When the female bird is incubating her eggs, a low conspiratorial tone is emitted by the male bird as he brings food for his mate. It is answered by the female with an equally subdued "quip" as she stealthily slips out of the nest and flies to her mate waiting for her with food at some distance. The idea of all this "hush hush behaviour is I presume not to give away the nest site by any unnecessary noisy display. The behaviour is ludicrously human in its furtiveness and caution.

Judging by our human methods and standards, we see that the numbers of communication signals or codes that are employed by the animal world, are limited and too few. The aggressive display of a monkey "RHESUS" very starkly illustrates another system of animal communication. Signals required to convey messages of intense belligerence are always of long duration and militant character. My observations have always shown that in all such cases, the most prominent postures are in the form of glaring with the mouth menacingly held open, slapping the ground with its hands, and bobbing its head up and down in an attempt to scare its adversary.

Going back to the world of insects, it has repeatedly been noticed that crickets and cicadas sing. I have tried to find some explanation for the emission of all this noise, and I am of the opinion that "cicadas" buzz to attract mates. At the same time they are able to kick up such a rumpus in the process that obviously is sufficient to discourage birds from attacking them. A congregation of a hundred or more "cicadas" can easily produce a volume of noise upto the order of a hundred or more decibels at a distance of sixty feet. Such voluminous sounds can definitely be painful if not actually damaging to the eardrums

of any predatory bird or animal. The insects are themselves apparently immune to the terrific noise they are able to produce.

The "mole cricket" a very common insect, "GRYLLOALPA" is well known for the exceptional quality of his noise. This cricket is a lusty fellow, and sends forth his call with amorous intent. To make the quality of his noise more appealing to female listeners, this cunning fellow is not merely content with the drone of his monotonous serenade, but must add resonance to his music by getting it amplified. To this end he very ingeniously fashions his burrow in the form of a doubled horned acoustic amplifier, which gives maximum effect to his song.

We train dogs to recognize a few different words spoken to them, and they will readily respond to signals given by the trainer, and it will have to be admitted that in a sense, their achievement is indeed very remarkable. However returning to the beginning of the article, and once again comparing animal systems to our own means of communication, which lies through the medium of language mostly, we awkwardly try to trace the very origin of all communication back through the uncertain and hazy shroud of evolution.

As far as human beings are concerned, the only things that could possibly link us with the past are perhaps, our changing expressions, our varying hand signals, and our vocal tones. Here is found a remote resemblance that Darwin compares with some of the apes, but he is unfortunately unable to offer any satisfactory explanation for the development of human speech. Man alone is distinguished from the animal world by speech and the power to think.

The question that now arises is familiar to most of us. How is an instinct learned? Before we attempt in detail the relative causes or explanations, we have got to understand the very meaning of the word instinct. In my opinion this could be any sort of activity which we generally consider as inherent and unlearned. However my investigations have revealed that there are some behaviour patterns seen in the animal world that have been subtly developed out of experience. All such behaviour I assume is partly learnt response. In my study of some bird species I have found that instinct sometimes does involve a degree of learning.

The solution perhaps lies in the ever advancing process of life experience, not of an individual, but of a species over a period of time, geological time. And in the fullness of this time, some physiological traits have acquired values as certain signals. Explaining this further, I believe that the progress and flow of time has altered sets of particular movements, simply to convey certain meanings more effectively.

For example we can safely assume that many thousands of years ago, birds just before flying would raise their tails, and slightly spread their wings. Our present day knowledge

shows that things have not greatly altered, and what happened thousands of years ago continues to take place even today. However we also see that a spread tail today, as often as not, reveals a white rump. This flashing of a white spot, acts precisely as a warning signal of approaching danger to the entire flock, which will under the circumstances, immediately take wing and go racing for cover.

In conclusion my study of some bird species confirms, nay emphasizes the fact that instinct does really involve a degree of learning; learning acquired over an extraordinary period of time. Results are not lacking to prove that suggestive movements, indicating some form of communication as well as behaviour patterns, generally seen in animals are the results of gradual development.

Addition to the Leech Fauna of Himachal Pradesh, India

By

MAHESH CHANDRA

High Altitude Zoology Fd. Stn. Zoological Survey of India, Solan, H.P.

During the study of leeches of Himachal Pradesh, the author came across a specimen of *Hirudo birmanica* (Blanchard) collected from Renuka Lake in District Sirmaur, Himachal Pradesh. The form is slender and small headed. The body is strongly depressed, ovate-lanceolate with seven brown dorsal stripes, the preclitellar region relatively tapering. Eyes are arranged as usual but are smaller in size.

Measurement:—35 mm $\times$ 5.3 mm (alcoholic specimen).

Material:—1 ex., Renuka Lake, District Sirmaur, Himachal Pradesh. Coll. R.C. Subba Raju. Date 20. vii. 1975.

On consulting the available literature, it is revealed that this species was originally described by Blanchard¹ from Burma. Subsequently, Harding and Moore³ have reported its distribution from present geographical limits of Tamil Nadu, Karnataka, Maharashtra, Punjab, Uttar Pradesh, West Bengal and Ceylon. Although, Punjab was a big province in that period and some of the districts of present Himachal Pradesh were under Punjab, but district Sirmaur has never been a part of old greater Punjab.

So far, sixteen species of leeches have been recorded by the author² (in press) in the check-list of leeches of Himachal Pradesh. As this species was not found earlier, hence its addition will increase the number of known species in Himachal Pradesh from sixteen to seventeen. The present communication is intended to record the occurrence of *Hirudo birmanica* (Blanchard) in Himachal Pradesh for the first time and to make the leech fauna of this region up-to-date.

1. Blanchard, R. 1894. *Ann. Mus. civico distonia Naturelle*, Genova, 2(14) : 113-118.
 2. Chandra, M. *Rec. Zool. Surv. India* (in press).
 3. Harding, W.A. and Moore, J. P. 1927.—*Fauna of British India, Hirudinea*. Taylor and Francis, London, p. 192-199.
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Colour Variation in *Haemadipsa sylvestris* Blanchard (Hirudinea: Haemadipsidae)

By

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While examining the leech collection of Eastern Regional Station, Zoological Survey of India, Shillong, the author came across three examples of *Haemadipsa sylvestris* Blanchard, showing variation in their normal colour pattern. According to Moore (1927), Colouration closely resembles that figured and described by Whitman for *Haemadipsa japonica*, but differs very constantly that the median dorsal stripe, which is the best developed and commonly the only one in the latter, is in this species narrower and more imperfect than the paired stripes, and frequently broken or obsolete."

Material:—(1) 3 exs., from Umshing village, Shillong, coll. V.D. Srivastava, 25. V. 1963.

(2) 3 exs., from Cherapungee, Assam, coll. B.K. Tikadar, 20.VII. 1963.

In the above two lots there are two examples where the median dorsal stripe is well developed like the paired paramedians. In another example all the three dorsal stripes are prominent, broken forming a reticulate pattern. The remaining three examples strictly confirm with the established colour pattern of *H. sylvestris* Blanchard, The presence of well developed median lines in two examples and the broken prominent lines in the third examples, at the same time other morphological characters remaining the same, is an indication of colour variation within the species of *H. sylvestris* Blanchard.

So it is very peculiar and most interesting to note this variation of colour pattern. As the colour pattern in the case of land leeches is very important character in speciation. During the last sixteen years of study on leeches, first time the author experienced such variation. Hence the author desires to put his observation on record.

Thanks are due to Dr. K.K. Tiwari, Joint-Director and Dr. B.K. Tikadar, Deputy Director of my department for constant encouragement and facilities provided to study the material.

1. Chandra, M.—*Rec. Zool. Surv. India*, 1970, 64 (1-4), P. 108.
 2. Harding, W.A. and Moore, J.P. *Fauna Brit. India, Hirudinea*, 1927, P. 279.
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Operation Panther

S.M. HASAN

Asstt. Director, Project Tiger, Kanha Tiger Reserve, Mandla.

On 23rd February 1977 widespread showers occurred in Mandla, Balaghat and adjoining districts of Madhya Pradesh. I was staying at my head quarters in Kanha National Park enjoining the showers. At 1815 hrs. Sambar-II wireless station flashed a message for me saying that "A panther fell down in a dry well in Seoni District—keep ready tranquilising equipment — Field Director reaching within 10 minutes for proceeding to Seoni". Instantly my mind was diverted to the problem. I immediately changed into complete field dress and started collecting necessary tranquilising equipment, rope and net etc. and instructed to my orderly to pack my necessary touring kit. At 1830 hrs. Field Director (PT) arrived. We had a cup of tea and pushed off to Seoni 200 kms from Kanha and reached there by mid-night.

To my great surprise Chief Wildlife Warden, Madhya Pradesh, Mr. J.J. Dutta, had already arrived at Seoni from Bhopal. Negotiating a distance of about 350 kms non-stop.

We all were together at the residence of Divisional Forest Officer, Seoni. He told that a young panther fell a newly dug well in Gopalganj village about 13 kms south of Seoni. The dimensions of the well were about 6 metres deep with a diameter of about 8.40 metres. On one side of the bottom of the well there was a small pool of water. The panther slipped down the well between the night of 21-22nd February 1977. Monkeys were observed peeping inside the well and giving alarm call on the morning of 22nd February by the villagers, which gave the clue of panther and the matter was reported to Divisional Forest Officer, Seoni at 1600 hrs. He instructed the Range Officer to erect a bamboo fence around the well to keep away the crowd. He rang up to Chief Wildlife Warden, Madhya Pradesh and Field Director, Kanha asking for further steps to be taken. On phone he was advised to provide food and water to the panther which he had already done by lowering a kid into the well.

As it was already too late we decided not to disturb the animal. We discussed about some drugs to be administered and decided to try Katamin (Katamin hydrochloride) a very useful drug for tranquilising cats. We were made comfortable for the night in a beautifully located forest inspection hut at Bamandehi about 6 kms from Seoni.

Next day on 24th February 1977 after early breakfast we arranged for a weighing machine and reached the spot at 0845 hrs. The panther (sub-adult female) was quite active

inside the well. The kid which was lowered on 23.2.77 was sitting comfortably in the centre of the well untouched by the panther, unafraid, occasionally bleating looking at us.

The Divisional Forest Officer, Seoni, Shri Kamran had already got a ladder prepared and I had arranged two forked probes for handling the panther. A Forest Ranger was given the tape to record a running commentary of the operation.

A syringe with 5 cc Katamin was loaded in the gun. The problem came about sight adjustment. The panther was crouched below a wooden pole and the distance of the panther from us was 11.30 metres. With 0-20 metres range cartridge if the dart is to be fired parallel to the ground the range table sight on the slot of the barrel is to be fixed at 10. But in this case the gun was to be fired at an angle of 60° down, to the bottom of the well from above. Thus the syringe was to move partly in the direction of gravity and it was likely that the syringe would hit high if sight is fixed at 10. Taking into account that only half the gravitational force will act to pull down the syringe from its course the site was adjusted at 4 and the syringe was fired at 0912 hrs. The syringe went 6" above the target and hit the wooden pole under which the panther was crouched. Now as the drug Katamin was not in sufficient quantity with us we decided to use another drug known as Rompun (Xylazine hydrochloride) judging the weight of panther to be 40 kg. Another syringe was filled with 350 mg. Rompun (Xylazine). Though this drug is not generally used for tranquilising carnivores but it is a good sedative, analgesic and muscle relaxant. Its sedative and analgesic activity is related to central nervous system depression and its muscle relaxant effect is based on inhibition of the intra neural transmission of impulses in the central nervous system.

Normally this drug is administered 2-3 mg./kg. body weight in herbivores for mild sedation but a 10 times higher dose of this drug can be tolerated with long period of sedation. Thus for dangerous carnivores 8-9 mg./kg. body weight was decided judging the weight of the panther to be 40 kg.

The syringe was fired at 0920 hrs. this time adjusting the sight at 0 making allowance for the depression and the closeness of the panther. The distance of the panther was 11 metres. The syringe hit the panther correctly at the rump. The panther growled but did not move.

After a few seconds it got up, went to the crevice touching its side to the nose of the kid. Kid bleated and the panther crouched in the crevice. Within 5 minutes it started showing the effect of the drug as there was no co-ordination in the limbs when it walked. After 10 minutes it could not stand and sat down. A bamboo was lowered to the panther, it moved to the other side. Again after 5 minutes the bamboo was lowered it could not

move. The effect of the drug was conspicuous. In the meantime a ladder was lowered in the well. The Chief Wildlife Warden Mr. J.J. Dutta took the lead and went down the well. He touched the panther with a stick, it agitated, growled but could not move. Field Director, Mr. Panwar and a Forest Ranger Mr. Ramchandran also went down the well. I was busy in supplying necessary material and was ready to pull up the panther. The forked probes, rope, and net was lowered. With the help of forked probes the movements of the panther were controlled and the animal was muzzled. All the four legs and muzzle were tied with ropes and it was lifted up the well. While muzzling the panther growled, agitated and slipped twice from the forked probes, once inside the pool of water but it could not move much.

After taking out from the well it was weighed and its anal temperature was recorded. It was 20 kg. young female panther and after 30 minutes of tranquillising its temperature was 99° F.

The Panther was taken about 5 km. inside the nearby Lamajiyoti Forest in the jeep and was released below a Mahua tree at 1010 hrs. At the time of releasing, the panther became quite active and it half recovered from the effect of the drug.

First all the legs were untied. It stood up and was trying to move away. Mr. Dutta was holding it by the collar like a dog. The muzzle knot was opened and it moved off.

After releasing, for 3 minutes it sat in the shade of Mahua tree and then climbed on a branch 1.20 metres high in first attempt and then to a branch about 3 metres high from the ground. It sat on the branch and started basking. Monkeys on a tree hardly 50 metres away started giving alarm call and the panther was relieved to be in its natural surroundings. Once the panther slipped from the branch and dangled with two fore paws but it did not fall down, it climbed again and sat posing for nice photographs. For about 14 minutes it was on the branch. When we approached within 20 metres taking photographs it climbed down and went off inside the forest trotting.

The whole operation ended in 45 minutes. We congratulated each other for the success. The villagers, gathered in huge number were interviewed and we told them about non harming nature of the animal and our help for their survival.

Drugs and Doses

Our first mistake was in estimating the weight of the panther. The actual weight of the panther was 20 kg. whereas we estimated it to be about 40 kg. This over estimation lead us to administer an overdose of the drug. Since the drug Rompun (Xylazine) is

not used for tranquilising carnivores the exact doses were not known to us. Thus the actual dose of Rompun given comes to about 18 mg./kg. body weight. This quantity of drug was just sufficient to sedate the animal for about 60 minutes. This quantity and dose of drug did not produce long sedation and the animal had been in complete senses throughout the operation. No salivation occurred which is otherwise common in herbivores with this drug. Thus to handle larger healthy carnivores, if only Rompun (Xylazine) is to be used the dose should be between 20-25 mg./kg. body weight. This will sedate the animal for safe handling for 1-2 hours.

Muzzling

It is important to muzzle the animal first before handling it. With the help of about 2 metres medium size cotton rope muzzle should be tied with single simple knot and the rope should be taken round the head and tied behind the ears to hold the muzzle knot. This will not permit the animal to open its mouth. After muzzling all the 4 legs should be tied close together so that it is not able to take out muzzle rope with the help of paws. This should be done when the animal is kept pressed at the neck and waist by two or more men with the help of poles forked at the front end in broad V-shape.

Important behavioural aspect of the panther felling inside the well

The panther was young female cub approximately six months old. It was about (4½-5') long weighing 20 kg. The average length and weight of adult female panther in general is 6' and 39 kg. respectively (Prater S.H. 1971: 68). The panther could still be with its mother. It seems that this particular panther came near the village well during night stalking its common prey the village dogs. There was loose earth round the edge of the well. The panther being inefficient in predation and not conversant with the newly dug well slipped into it while the prey conversant with the area managed to move away.

Distress activities

(a) Attempt to escape

The panther fell into the pit in the night between 21-22 February, 1977. During the night it struggled to come out and jumped from different sides in an attempt to escape. Maximum nail marks were seen on the side towards forest, also the side from which it might have dropped. The maximum height to which it could jump was 4.5 metres (measured from nail marks). When exhausted it gave up the attempts and during day time it did not attempt to escape.

(b) Mosaic behaviour

As people started collecting to see it, the panther crouched growling at the visitors and twisting its tail in anger. When we reached the spot it growled at us posing

to attack and giving jerks to the body in our direction with growls as if it is jumping. Some time it seemed that it will really attempt to jump at us. But it was all mosaic behaviour to threaten us to keep away.

Shelter seeking

When we did not take notice of its mosaic behaviour it crouched in a small crevice between two stones hardly sufficient to hide 1/3rd of the panther in the well bed. It lowered its head in other direction from us as if it has not been observed by the spectators. Some time it would come out from the crevice and sit below a wooden pole of hardly 4" diameter lying in the well. It stayed in bare open only while showing mosaic activities.

When the panther was released in the forest, it sat in the shade of Mahua tree on the other side from us. It could have run away very well not doing that he climbed the tree observing us. Though the branch on which it was sitting was hardly 3 metres from the ground but it felt more secure over a tree in presence of us rather than to run away in the forests. The panther on the branch crouched behind the bunch of leaves facing and observing us. Rest of its body was open to the sun and it seemed to be drying itself. Though some effect of the drug was still there but it maintained its balance while climbing and coming down though the action was slow.

Self defence

When the panther was to be muzzled and tied inside the well it agitated much and was always trying to move away from us. At the time of releasing inside the forest when all the four legs were untied it tried to run away in opposite direction while Mr. Dutta was holding it by the muzzle rope. As soon as the muzzle rope was loosened it moved off and sat down under a Mahua tree hiding itself in opposite direction from us about 30 metres away. As we tried to locate it and reached closure it climbed up the tree. In the whole operation the panther never showed the tendency to attack us, it was always on the defensive side.

Feeding

The panther felled down in the well in the night between 21-22 February, 1977. Though the water was present in a small pool but there was no food. The panther must have exhausted in attempts to escape from the well. For the first time on 23.2.77 a month old kid was lowered at 1715 hours but it was taken out alive after releasing the panther on 24.2.77. This under stress condition the animal did not take the food, though it had not taken anything since last 60 hours at least.

The Guards were posted to keep the track of the panther in the area. The panther was observed on 27.2.77 in Lamajyoti forest quite hale and hearty.

कौबेट नेशनल पार्क

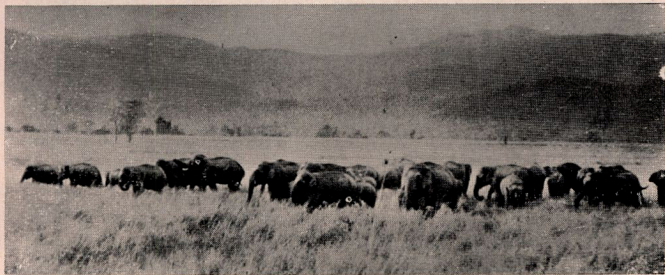
लेखक : रामेश बेदी

छाया : राजेश बेदी

कौबेट राष्ट्रीय उद्यान (कौबेट नेशनल पार्क) की स्थापना सन् १९३५ में हुई थी। उत्तर प्रदेश के तत्कालीन गवर्नर सर माल्कम हेली के नाम पर इसे तब हेली नेशनल पार्क कहते थे। बाद में यह राम गंगा नेशनल पार्क के नाम से पुकारा जाने लगा। स्वतन्त्रता के बाद १९५७ में राज्य सरकार द्वारा इसका नाम कौबेट नेशनल पार्क (कौबेट राष्ट्रीय उद्यान) रखा गया। भारत का प्रसिद्ध शिकारी व लेखक कर्नेल जिम कौबेट इस स्थान के समीप ही कालाढूंगी में रहता था। उसने इस क्षेत्र के आसपास कुमाऊँ और गढ़वाल में बड़ी संख्या में नरभक्षी शेरों का सफाया करके जनता को उनके आतङ्क से मुक्ति प्रदान की थी। नरभक्षियों के शिकार के कारण समस्त संसार में उसकी ख्याति फैल गई थी। जंगली जीव जन्तुओं के स्वभाव को और उनकी आदतों को जिम कौबेट ने सूक्ष्मता से अध्ययन किया था। उन के बारे में उन का ज्ञान बहुत गम्भीर और विस्तृत था। विदेशी होते हुए भी वह इस प्रदेश के लोगों से बहुत स्नेह करता था, उन के सुख-दुःख में वह घुलमिल गया था। स्थानीय लोगों के हृदयों में उसका गहरा स्थान बन गया था। उस की सेवाओं का समादर करने के लिए ही सरकार ने इस उद्यान का यह नामकरण किया था।

यह राष्ट्रीय उद्यान हिमालय की तराई में दक्षिणी पातली दून से लगा हुआ है। इसका लगभग एक-तिहाई भाग जिला नैनीताल में तथा दो-तिहाई भाग जिला गढ़वाल के अन्तर्गत है। उद्यान के अन्दर शिकार खेलना मना है, परन्तु उसके चारों ओर शिकारियों के लिए कई आकर्षक वनखण्ड रहे हैं। पूर्वी सीमा पर रामनगर वनखण्ड के बिजरानी तथा चिल्किया शिकार क्षेत्र थे। दक्षिण-पूर्व में फिरना, उत्तर में मन्दाल, अदनाला और पलेन तथा पश्चिम में हाथीकुण्ड तथा कालू शहीद नामक शिकार क्षेत्र फैले हुए थे। अब पार्क की सीमा के आठ किलोमीटर के अन्दर शिकार खेलने पर प्रतिबन्ध है, भले ही वह शूटिंग ब्लॉक का भाग ही क्यों न हो। अदनाला, पलेन, हाथीकुण्ड, कालू शहीद तथा चिल्किया ब्लॉक पार्क के अन्दर नहीं लिये गये हैं लेकिन इनमें शिकार खेलने की मनाही है। फिरना ब्लॉक को पार्क के अन्दर ले लिया गया है। बिजरानी व मन्दाल ब्लॉकों का कुछ भाग तो पार्क के अन्दर ही आ गया है, शेष भाग में भी शिकार खेलना मना है।

कौबेट नेशनल पार्क सवा छह सौ किलोमीटर (सवा सौ वर्ग मील) से भी अधिक क्षेत्र में फैला हुआ है। कोटद्वार से रामनगर जाने वाली मोटर सड़क इस के दक्षिण में कालागढ़ से धारा तक जाती है। शिला बिजनौर की सीमा रेखा भी यह सड़क है। उद्यान की उत्तरी तथा पश्चिमी सीमाओं के साथ-साथ बीस-पच्चीस मील तक राम गंगा बहती है। इस नदी के एक किनारे मीलों तक शीशम के वन चले गये हैं। वसन्त में इन पर नई कोपलें फूटती हैं। हरे वृक्षों की प्यारी पंक्तावलि के पीछे पार्क के अन्दर सिम्बल, कचनार, पलाश और अमलतास की तंगी डालियाँ लाल, सफेद और पीले फूलों के परिधानों में सज जाती हैं।



Elephants in Corbett Park.

Photo by Ramesh Bedi.



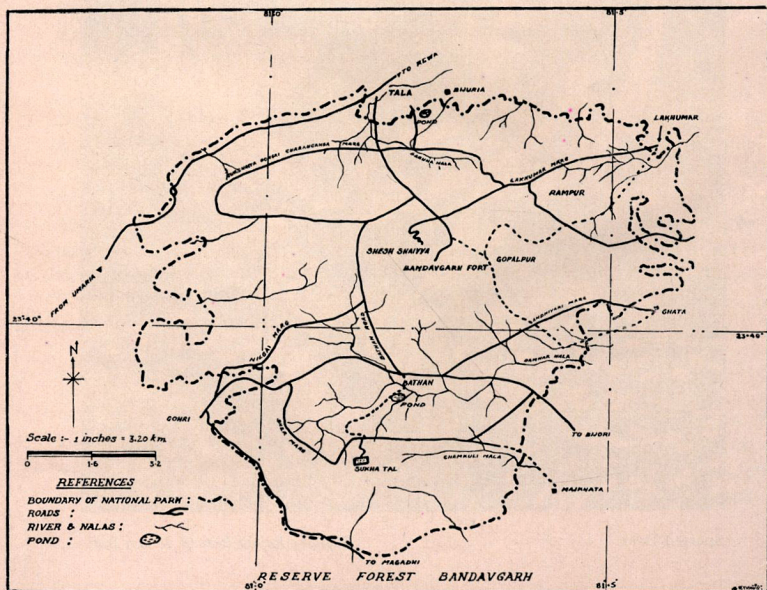
Spotted Deer.

Photo by Rajesh Bedi & Naresh Bedi.



Tiger Cubs.

Photo by Rajesh Bedi & Naresh Bedi.



See Article on Page 3.

तब, घाटी की शोभा देखते ही बनती है। वन ज्योत्सना, ककरोंधा और दूसरे सुगन्धित फूलों के खिलने से इस वन प्रदेश का वातावरण भीनी मादक गन्धों से भर जाता है।

नव यौवन की खुमारी में सजी हुई यह घाटी नई नवेली दुलहन की तरह दीखने लगती है। हिमालय की तराई में मिलने वाली प्रायः सभी प्रकार की वनस्पतियां यहाँ पाई जाती हैं। नालों में हंसराज और तरह-तरह के फर्न लहलहाते हैं। साल और महुए के पुराने पेड़ों के स्कन्धों पर रहीनकोस्टीलिस रेडुसा नामक आकिड के गुलाबी फूलों के लम्बे गुच्छे झूमते हैं। सारिवा, मालभन और सुगन्धित फूलों वाली दूसरी लताएं हल्दू और साल के ऊँचे वृक्षों पर छायी हुई हैं। हवा के भोंकों से लम्बी टाइगर ग्रास में लहरें ऐसे दीड़ जाती हैं मानों मीलों तक फैले हुए गेहूँ के पके खेत झूम रहे हों। प्राकृतिक सौन्दर्य की ये अविस्मरणीय भांकियां हैं। इन्हें देख कर अनुभव होता है कि इस जंगल को राष्ट्रीय उद्यान जैसा गौरवपूर्ण नाम देना कितना सार्थक है।

उद्यान के अन्दर प्रवेश करने के लिए पहले तीन दिन के लिए प्रति व्यक्ति छह रुपये और उसके बाद दो रुपये प्रति व्यक्ति प्रति दिन देना होता है।

रमणीक मार्ग

हिमालय की तराई में देहली से यह उद्यान सड़क के रास्ते २६० किलोमीटर की दूरी पर देहली-रानीखेत मार्ग पर अवस्थित है। मुरादाबाद, काशीपुर होते हुए रामनगर पहुँचना होता है। यहाँ तक आप मोटर द्वारा या रेलगाड़ी द्वारा पहुँच जाते हैं। रामनगर से उद्यान का मुख्य स्थान डिकाला पचास किलोमीटर की दूरी पर है, उन्नीस किलोमीटर आने बाद आप बायें हाथ एक चौड़े कच्चे वनपथ पर मोटर को मोड़ लेंगे। वैसे तो आप पार्क के अन्दर ही खड़े हैं परन्तु यह इस का एक छोर है। यहाँ पार्क में दाखिल होने के लिए चैक पोस्ट है और रेस्ट हाऊस है। इस स्थान को घनगढ़ी कहते हैं। यहाँ से डिकाला तक का बत्तीस किलोमीटर मार्ग खूब हरा-भरा, सोतों और नालों से परिपूर्ण है।

पहाड़ी मार्ग पर मोटर ऊपर नीचे उतरती हुई आप को उद्यान के भीतर ले जा रही होती है। वहिन के हचकोलों से आप निद्रादेवी की गोद में जा सकते हैं। परन्तु, दृश्यावली की रमणीयता आप को जगाये रखती है। यह अच्छा ही है क्योंकि आप के दाहिने, बायें या सामने कहीं भी पास ही वन्य पशु खड़ा हुआ आप को निहारता हुआ दीख सकता है।

रामनगर स्टेशन से घनगढ़ी और मुलतान होते हुए छायादार अरण्यपथ पर चलने के बाद ऊँचे शाल वृक्षों की घनी छाया के पीछे उजाला दिखाई देने लगता है। यह संकेत है कि आप अपने गन्तव्य स्थान पर आ चले हैं। सात मील लम्बे और तीन मील चौड़े एक खुले मैदान में आप कुछ मकान देखेंगे जो सदा सुव्याप्त होने के कारण दूर से ही नगरों की अद्यतनीय घबल कुटियों की याद दिलाते हैं। यहीं आप ने पहुँचना था। इसी को डिकाला चौड़ कहते हैं। जंगल के बीच में जो चौड़ा मैदान आ जाता है उसे स्थानीय बोली में चौड़ कहते हैं। इस उद्यान में और भी चौड़ हैं परन्तु इतने बड़े नहीं।

हरिद्वार छो कर

ढिकाला में पहुँचने का दूसरा मार्ग हरिद्वार और कोटद्वार होकर जाता है। पर्यटकों के लिए इस मार्ग में अनेक आकर्षण हैं। उत्तराखण्ड के प्रसिद्ध तीर्थ हरिद्वार और पुण्य सलिला गंगा की छटा को देखने के साथ-साथ वे उत्तुंग हिमालय की भाँकी पा सकेंगे। सुबह की चाय पी कर दिल्ली से चलने वाले पर्यटक अपनी जीप में सात बजे हरिद्वार पहुँच सकते हैं। स्नान, ध्यान और नाश्ता करके दस बजे वे यहाँ से गंगा पार कर के कोटद्वार की ओर प्रस्थान करें। मार्ग में कण्व आश्रम, मालिन नदी और मालिन वन जन्तु विहार (सैंक्चुरी) भी देख सकते हैं। हरिद्वार से कोटद्वार लगभग बीस मील है। कोटद्वार से अठाईस मील दूर कालागढ़ है। वहाँ से रामनगर हो कर ढिकाला जाते हैं। रामनगर में कौबेंट नेशनल पार्क का कार्यालय है। वहाँ से दुपहर बाद दो बजे पार्क की मिनि बस टूरिस्टों को ढिकाला ले जाती है। प्रति व्यक्ति साढ़े सात रुपये किराया है।

हाथी की मजेदार सवारी

उद्यान के भीतर कई नाले और सोते बहते हैं। प्रायः सारा क्षेत्र जंगलों से आच्छादित है जिसमें छोटी-छोटी पहाड़ियाँ उठी हुई हैं और बीच-बीच में समतल भूमियों के कुछ टुकड़े हैं। समुद्र की सतह से इस क्षेत्र की ऊँचाई चार सौ से ग्यारह सौ मीटर तक है। पार्क में सभी सड़कें कच्ची हैं जिन पर दिसम्बर से जून तक ही मोटरें चल सकती हैं। जनवरी और फरवरी में यदि जोर की बारिश पड़ जाय तो यहाँ की संचार प्रणालियाँ कुछ समय के लिए फिर खराब हो जाती हैं। जहाँ जीप नहीं जा सकती वहाँ हाथी की पीठ पर बैठ कर वन्य जन्तुओं को देखने की सुविधा ढिकाला में प्रदान की जाती है। वने जंगलों में, गंगा के गोल पत्थरों पर और घासों के बीच में जब आप को हाथी ले जा रहा होता है तो यह एक मजेदार अनुभव होता है। गहन वन में जहाँ पगडण्डी भी नहीं होती अपनी विशाल काया को लिये यह घुसता चला जाता है। मार्ग के छोटे-छोटे पेड़ों को सूँड से मरोड़ कर इस तरह फेंकता जाता है मानों खेत में किसान गन्ने उखाड़ रहा हो। वन के अन्तराल में, जहाँ आप पैदल नहीं पहुँच सकते, यह आपको ला खड़ा करेगा और वहाँ खूबसूरत मींगों वाले किसी हिरण को या पटेरा खाते हुए हाथियों के झुण्ड को देख कर आप अपनी वन-यात्रा की सफलता पर प्रसन्न हो उठेंगे। टूरिस्टों को सुबह छह बजे और शाम पाँच बजे सवारी का हाथी मिलता है। एक हाथी पर छह आदमी बैठते हैं। एक ट्रिप सामान्यतया दो घण्टे की होती है जिसका प्रति सवारी दस रुपया लिया जाता है।

ढिकाला चौड़

यह चौड़ लगभग सात मील लम्बा और तीन मील चौड़ा मैदान है जिस में अनेक प्रकार के जानवर घास चरने के लिए आ जाते हैं। इस के एक सिरे पर ढिकाला का विश्रामगृह है और दूसरे सिरे पर कालागढ़ बांध से बनी झील है। चौड़ की बांयी सीमा के साथ-साथ सात मील तक कलकल करती हुई राम गंगा बहती है। मैदान के बीच में से मोटर मार्ग जाता है। चौड़ की दक्षिणी सीमा के साथ दूसरी सड़क गुजरती

है। इसके साथ जंगल लगा हुआ है। छायादार वृक्षों के उगे रहने से यह सड़क अपेक्षाकृत कम तपती है जिस कारण इसे ठण्डी सड़क कहते हैं। इस सड़क से आगे अर्थात् चौड़ के उत्तर-पूर्व से उत्तर-पश्चिम तक पहाड़ियाँ फैली हुई हैं। हाथी की पीठ पर या जीप पर इस ठण्डी सड़क पर भ्रमण करते हुए वन्य पशुओं को देखने में बड़ा आनन्द आता है। यहाँ हमेशा कोई-न-कोई जीव मिल जाता है। मैंने यहाँ हाथी, शेर, सैकड़ों चीतल, काकड़, पाढ़े, सांभर, सुअर वगैरह देखे हैं।

ढिकाला के विश्रामगृहों में पर्यटकों तथा कर्मचारियों और अधिकारियों की भीड़-भाड़ रहती है। इसलिए मुझ जैसे अनेक लोगों को उद्यान के ऐसे स्थान अधिक पसन्द आये जहाँ एकान्त हो, जंगल का सन्नाटा हो और शान्त तथा गम्भीर-भयावह वातावरण हो। इस दृष्टि से मुझे पटेर पानी और गाज पानी स्थान बहुत बढ़िया लगे। ये दोनों उद्यान के बिचले भाग में स्थित हैं। ढिकाला से पटेर पानी की दूरी सात किलोमीटर है। कुछ समय से यह भाग बांध परियोजना के आधीन चला गया है। वहाँ टूरिस्टों के प्रवेश पर रोक लगा दी है।

महाशाल

ढिकाला चौड़ की ठण्डी सड़क के पास ही शाल का एक महान् वृक्ष खड़ा है। १५६ फीट की आश्चर्यजनक ऊँचाई प्राप्त करने के लिए इस महावृक्ष ने न जाने कितनी ही सल्तनतों को उदय और अस्त होते देखा है। प्रकृति की इस अद्भुत देन को वन विभाग ने संरक्षित वृक्ष के रूप में बचा रखा है। ढिकाला में आने वाले कितने ही शासकों ने और पर्यटकों ने ऊँचा मस्तक उठा कर शान से खड़े हुए वृक्षों के इस पितामह को श्रद्धा के सुमन चढ़ाये हैं। रघुकुल की यशोगाथा का गान करने वाले महाकवि कालिदास को ऐसे ही प्रांशु शाल वृक्षों से प्रेरणा मिली थी। इस विशाल वृक्ष के तने का घरा इक्कीस फीट सात इन्च है। इन जंगलों में साल का यह सब से बड़ा वृक्ष है, और कुछ अधिकारियों का खयाल है कि हमारे देश के विस्तृत वनों में साल का इतना बड़ा पेड़ कहीं नहीं मिलेगा।

प्रतीत होता है कि इन जंगलों के आदिवासी बोक्सा लोगों का यह वन देवता रहा होगा जो सब प्रकार के अनिष्टों से उनकी सदा रक्षा करता था; और इसीलिए मनुष्य की कुल्हाड़ियों का शिकार होने से यह बचा रहा। इस प्रदेश में पहले बोक्सा लोगों के कई डेरे थे। स्थानीय बोली में बोक्साड़ का अर्थ होता है बोक्सा लोगों का डेरा। तराई में रहने वाली यह आदिवासी जाति कोई सौ बरस पहले पातली दून क्षेत्र के घने जंगलों में भूम की कृषि करती थी। जंगल में आग लगा कर वे नई भूमि तोड़ लेते थे तथा कुछ ही बरसों बाद उसे खेती के अयोग्य समझ कर छोड़ देते थे। तब, दूसरा जंगल जला कर नई भूमि प्राप्त कर लेते थे। यहाँ के मूल्यवान् साल वनों को इस विनाश से बचाने के लिए उस समय के शासक सर हेनरी रेमजे ने बोक्सों को यहाँ से हटा कर अन्यत्र बसा दिया था।

प्राणियों की विविधता

कौबेट नेशनल पार्क में वन्य पशुओं की अनेक जातियाँ पाई जाती हैं। स्वच्छन्दता से विहार करने

वाले जंगली पशु-पक्षियों की विविधता और बड़ी संख्या को देखते हुए यह एशिया के सब से बड़े वन जन्तु विहारों में से एक माना जाता है।

दूसरे जन्तुओं का शिकार करके अपना पेट भरने वाले शेर आदि हिसक जन्तु यहाँ के जंगलों में दहाड़ते हैं। पार्क में चालीस शेर होंगे और बीस तेन्दुए।

पर फिर भी ये आसानी से पर्यटकों को अपने दायें-बायें घूमते हुए नहीं दीख पड़ते। मनुष्य की सर्वोपरि सत्ता का भान शेर जैसे जानवर को भी है। इसलिए ये अकारण मनुष्य के सामने नहीं आते।

शेर देखने के लिए जो दर्शक बहुत उत्सुक होते थे उनके लिए उद्यान के अधिकारियों ने एक विशेष व्यवस्था की थी। शेरभोजी नामक जंगल के मध्य में मचान के पास सांभ को एक कटरा बांधा जाता था। दर्शक मचान पर बैठे रहते थे और उत्सुकता से वन के इस रंगमंच पर बदलने वाले दृश्यों की प्रतीक्षा करते थे। गेम वार्डन के संकेत पर वे हिलती हुई टाइगर ग्रास की ओर टकटकी बांधे चुपचाप बैठे रहते थे। दूरबीनों से जो प्रतिमा अस्पष्ट सी दीख रही थी कुछ मिनटों की प्रतीक्षा के बाद वह टाइगर ग्रास के बाहर दूरबीन की सहायता के बिना भी स्पष्ट धारियों वाला शेर दिखाई देने लगता था। कटरे पर झपट कर वह उसका काम तमाम कर देता था। परन्तु जब शेर चारे पर नहीं आता था तो दर्शकों को निराशा भी होती थी।

अब टूरिस्टों को 'टाइगर' शो पर शेर दिखाना बन्द कर दिया है। शेरों का मनुष्य से डर निकल गया है। मनुष्य की उपस्थिति से अब वह पहले के समान चौकता नहीं। १९७७ के जून के शुरू में मैंने और मेरे परिवार के सदस्यों ने आठ दिनों में कोई छह बार शेर देखे। एक बार तो शेरनी के साथ दो बच्चे थे। वे मेरे से सत्तर मीटर दूर जलकुण्ड में खेलते रहे। मैं वन्द मचान पर बैठा था। इस परिवार को मेरी मौजूदगी का पता नहीं था। बीस मिनट तक मैं इन्हें देखता रहा।

ढिकाला से आंवली सोत दो किलोमीटर पर है। यहाँ रामगंगा के एक जलाशय में एक शेर पानी में बैठता तपन मिटा रहा था। इसने हमें देख भी लिया पर यह भागा नहीं। इसे भी हम बीस मिनट तक देखते रहे।

मस्त हाथी पार्क में बहने वाली जलधाराओं में क्रीड़ा करते हैं। इन हाथियों की कुल संख्या साठ और सी के बीच में होगी। हिरणों के झुण्ड शाल-वनो की शीतल छाया में जहाँ-तहाँ बैठे जुगाली करते रहते हैं। रंग-बिरंगे पक्षियों के कलरव से पार्क की घाटियाँ गूँजती रहती हैं।

लकड़बग्घे, गीदड़, लोमड़ियाँ, वनेले सूअर और भालू, जंगली बिल्लियाँ भी यहाँ के जंगलों में रहती हैं। कभी-कभी जंगली कुत्ते भी दीख जाते हैं। उड़न गिलहरियाँ और अजगर सांप भी दिखाई पड़ जाते हैं। कुछ लोगों ने यहाँ शेषनाग (किंग कोबरा) देखा है।

हिरणों-हिरण

हिरणों का तो कहना ही क्या। चीतलों के एक-एक भुण्ड में सैकड़ों चीतल चौड़ों में नयी घास के अङ्कुर कुतरते रहते हैं। कौबेट पार्क को एशिया का सब से बड़ा 'हिरणों का जंगल' कहा जाता है। हिरणों के जितने बड़े-बड़े भुण्ड यहाँ के चौड़ों में एक साथ बिचरते हुए दीख पड़ते हैं उतने एशिया में और कहीं नहीं मिलते। मृगों की दूसरी जातियाँ सांभर, काकड़, पाड़ा (hog deer) आदि भी यहाँ पेड़ों की छाया में आराम करती हुई मिल जाती हैं। हम इन्हें काफी नजदीक से देख लेते हैं। हिरणों के नन्हें बच्चे कुलांचे भरते हुए बड़े प्यारे लगते हैं। कूदते-फाँदते, मजे से खेलते हुए इन भोले जीवों को देखते-देखते व्यक्ति थकता नहीं। एक किस्म की जंगली पहाड़ी बकरी घुरल [Nemorpaedus goral (Hardwicke)] भी पार्क के कुछ हिस्सों में कभी-कभी पर्यटकों को दीख जाती है। जून १९७७ में मैंने एक बार घुरल देखी थी।

भील

पार्क के दक्षिण-पश्चिमी छोर पर कालागढ़ में रामगंगा पर एक डैम बनाया गया है। इस के पानी से बिजली पैदा की जा रही है और सिंचाई की जा रही है। पानी रुकने से अस्सी वर्ग किलोमीटर की विशाल भील बन गई है। इस में पार्क का तथा आसपास का बड़ा क्षेत्र डूब गया है। गरमियों में पानी की कमी हो जाने से भील का क्षेत्रफल छह वर्ग किलोमीटर रह जाता है। सरदियों में प्रवासी पक्षी इस भील में आने लगे हैं। टूरिस्टों के मनोरंजन के लिए यहाँ नौका विहार की सुविधा प्रदान की जाए तो यह बड़ा आकर्षक होगा।

हिप्पो और गेण्डे जैसे जानवरों को पार्क में छोड़ने के परीक्षण किये जा सकते हैं। मुझे आशा है कि ये यहाँ पर पनप जायेंगे।

मछली का शिकार

वसन्त ऋतु और गरमियों के महीनों में रामगंगा में मछली के शिकार का मजा होता है। महश्वीर, गूँच और अन्य मछलियाँ काँटे में फँसाई जाती हैं। एक दिन हम लोग रामगंगा के तट पर पिकनिक के लिए गये। कुछ ही देर में हम लोगों ने तीन महश्वीर पकड़ लीं। एक का वजन पाँच किलोग्राम के करीब था। यहाँ छत्तीस किलोग्राम से भी भारी (अस्सी-अस्सी पौण्ड की) मछलियाँ काँटे पर पकड़ी गई हैं। मछली पकड़ने के लिए एक रुपये का शुल्क के साथ प्रार्थना पत्र देना होता है। पन्द्रह दिन के लिए मछली पकड़ने का शुल्क दस रुपये है।

ढिकाला-रामनगर सड़क पर ढिकाला से सात किलोमीटर दूर एक स्थान का नाम हाई बैंक है। यहाँ रामगंगा के कुण्ड में मगरमच्छ और घड़ियाल रहते हैं। ढिकाला चौड़ के नीचे भील में भी ये जीव देखे गये हैं। पार्क में कुल मिला कर सात-आठ घड़ियाल होंगे। इन के संवर्द्धन के लिए प्रभावी कदम उठाने की तुरन्त आवश्यकता है।

मचान

सारे पार्क में अनेक जगह सीमेंट के पक्के तथा कच्चे मचान बनाये गये हैं जिनके ऊपर बीस-पच्चीस आदमियों की टोली आराम से बैठ कर दूर-दूर तक जंगली पशुओं को निहार सकती है। मचान के चारों ओर कांटे वाला तार खींचा होता है जो जंगली हाथियों से रक्षा करता है। इन्हें देखने जाने वालों को एक बात का ध्यान रखना चाहिये। जंगली जानवर सफेद और भड़कीले कपड़ों से चौक जाते हैं। इस लिए उन्हें खाकी रंग की पोशाक में जाना चाहिए। मच्छरों और मक्खियों के विपरीत डंक से बचने के लिए पूरी बांह की कमीज और पतलून या पाजामा पहनना चाहिए।

जीवजन्तुओं का चित्रण

जंगली जीवों की फोटोग्राफी करने के उद्देश्य से हर साल काफी लोग यहाँ आते हैं। इसके लिए वे मचानों पर चुपचाप बैठ जाते हैं और उनकी उपस्थिति का भान जब जीवों को नहीं होता तो वे पास ही चरते रहते हैं और उधर फोटोग्राफर अपना काम करता रहता है। फोटो खींचने के लिए स्फुर प्रकाश (फ्लैश लाइट) करने की आज्ञा नहीं है। स्फुर प्रकाश से जानवर चौंक पड़ते हैं। ऐसा कोई भी कार्य करना मना है जिससे जानवर आतंकित हो और मनुष्य का विश्वास खो बैठे। नियमों के अनुसार हांका करके जानवरों को एक नियत स्थान पर ले जाना, सचेंलाइट या फ्लैश लाइट का प्रयोग करना, रात को वाहन में घूमना, बन्दूक या किसी अन्य अस्त्र शस्त्र का प्रयोग करना अथवा किसी भी प्रकार जीव-जन्तुओं को सताना उद्यान के अन्तर्गत विलकुल मना है।

उपयुक्त समय

राष्ट्रीय उद्यान में जन्तुओं को देखने और उनके फोटो लेने के उद्देश्य से जाने का समय दिसम्बर से शुरू हो जाता है और मई के अन्त तक चलता है। आधा दिसम्बर बीतने पर सड़कें यातायात के लिए खुल जाती हैं। उन दिनों यहाँ सरदी अधिक होती है। अधिकतम तापमान पचपन और न्यूनतम तीस अंश फार्नेहीट रहता है। बरसात में वृक्षों के नीचे जो झाड़ भँखाड़ उग आये थे वे अभी हरे और घने होते हैं जिससे जंगल में घुसना कठिन होता है। मौसम तो साफ रहता है परन्तु तड़के ही धुन्ध छाई रहती है। जनवरी में जंगल की निम्नरोह सूखने लगती है। मौसम दिसम्बर जैसा ही रहता है परन्तु अधिकतम तापमान में पाँच डिग्री की गिरावट आ जाती है। फरवरी में मौसम सुहावना हो जाता है। अधिकतम और न्यूनतम तापमान क्रमशः ७५ और ४० तक जाते हैं। निम्नरोह और घास कम हो जाती है। घास को जलाने का काम शुरू हो जाता है। मार्च में वातावरण में कुछ गरमी आ जाती है। दिन का तापमान अब पिचास्सी फार्नेहीट तक और रात का पचपन तक चला जाता है। घास जल चुकी होती है। एप्रिल और मई में गरमी बढ़ती जाती है। इन महीनों में अधिकतम और न्यूनतम तापमान क्रमशः नब्बे और सत्तर तथा पिचानवे और पिचहत्तर तक चले जाते हैं। मई में दिन में तपिश बढ़ जाती है। इस लिए यहाँ आने के सर्वोत्तम महीने मार्च और एप्रिल होते हैं। मछली मारने के सर्वोत्तम महीने भी यही हैं।

बरसात में नदियों और नालों के उफन जाने के कारण यह प्रदेश मनुष्य की पहुँच से बाहर होता है। इस प्रदेश में साल भर में सौ इंच बारिश होती है जो अधिकतर बरसात में पड़ जाती है। उन दिनों घास और वनस्पति भी इतनी अधिक ऊँची हो जाती है और फैल जाती है कि जंगल में जीव जन्तुओं को देखना तो दूर की बात है जंगल में घुसना भी असम्भव होता है। सरदियाँ भी जंगल की दशा प्रायः ऐसी ही रहती है। वसन्त में जब पत्ते झड़ने लगते हैं और ऊँची टाइगर घास पीली पड़ने लगती है तो चौड़ों में फैली हुई इस घास में आग लगा दी जाती है। तब जो नये अंकुर फूटते हैं उन्हें चरने के लिए जंगलों से निकल कर हजारों चीतल और दूसरे शाकाहारी जन्तु चौड़ों में दूर-दूर तक फैल जाते हैं। गरमियों में चौड़ों में तथा पानी के सोतों के पास आये हुए जीव-जन्तुओं को अध्ययन करने की सुविधाएं इन दिनों बढ़ जाती हैं। गरमियों के दिन यहाँ गरम होते हैं परन्तु रातें शीतल और सुखद रहती हैं।

आरामदेह निवास

उद्यान में ढिकाला, कालागढ़, पटेरपानी, गोज पानी, मलानी, बिजरानी, सर्पदूली, मुलतान गैरल आदि स्थानों में विश्राम गृह बने हुए हैं। ढिकाला में पर्यटकों के निवास का सब से अधिक आरामदेह प्रबन्ध है। विद्यार्थियों और कम खर्च करना चाहने वालों के लिए सस्ते निवास हैं जो लम्बी बेरकों के रूप में बनाये गये हैं। सोने के लिए लकड़ी के तख्त पोश मिल जाते हैं। मौसम में भीड़ ज्यादा हो तो छोलदारियाँ मिल जाती हैं। इन के अतिरिक्त हटमैण्डस और दुमंजिले रेस्ट हाउस भी यहाँ बने हुए हैं जो बढ़िया फर्निचर, पलंग, गलीचे और बिजली से सुसज्जित हैं। बरतन, कोकरी, पानी और सफाई का प्रबन्ध अधिकारियों द्वारा किया जाता है। पर्यटन विकास विभाग द्वारा अब तम्बू, बिस्तर, बरतन, लालटेन आदि के साथ उद्यान के जंगलों में ठहरने की सम्पूर्ण व्यवस्था की जाने लगी है। सैलानियों को तैयार खाना प्रदान करने के लिए एक आधुनिक कैन्टीन चलाई जा रही है। इस में शाकाहार का सोलह रुपये और सामिष आहार का इक्कीस रुपये प्रति दिन प्रति व्यक्ति लिया जाता है। इस राशि में चाय, नाश्ता और दोनों भोजन शामिल हैं।

ढिकाला में कैबिन में ठहरने का साठ रुपये प्रति दिन प्रति कैबिन देना होता है। एक कैबिन में दो पलंग हैं। अतिरिक्त पलंग का प्रति दिन पन्द्रह रुपये देना होता है। टूरिस्ट हटमैण्ड में तीन शय्याओं वाले कमरे का किराया इक्कीस रुपये प्रति दिन है। अतिरिक्त शय्या का किराया सात रुपये प्रति दिन है। आप अपना बिस्तर न ले गये हों तो वहाँ से प्रति व्यक्ति पाँच रुपये प्रति दिन के हिसाब से बिस्तर मिल जाता है। ढिकाला में सब से सस्ता निवास स्विस् कौटेज टैण्टों में है। एक दो टैण्ट पलंग हैं जिनका किराया कुल साढ़े सात रुपये प्रति दिन है। टैण्टों में ठहरने वालों को प्रति व्यक्ति प्रति दिन ढाई रुपये सफाई आदि की सेवाओं के लिए देने पड़ते हैं। इन लोगों के लिए साँझी जन-सुविधाएं प्रदान की जाती हैं।

विदेशी टूरिस्टों से अधिक रुपये लिये जाते हैं। उनसे पहले तीन दिन का प्रति व्यक्ति पच्चीस रुपये प्रवेश शुल्क लिया जाता है। उसके बाद प्रति दिन पाँच रुपये। इसी तरह ठहरने का सौ रुपया प्रति कैबिन प्रति दिन, दो पलंग के लिए। हटमैण्ड में तीन पलंग का प्रति दिन तीस रुपये किराया है।

सुभाष

पार्क में एक आधुनिक थ्रीडिमेंशनल बनाया जाना चाहिए जिसमें दर्शकों को प्रति दिन जीव-जन्तुओं के सम्बन्ध में फिल्में दिखाई जाय ।

पार्क की ठन्डी सड़क जानवरों का अध्ययन करने के लिए अच्छा स्थान है । मेरी राय है कि जंगल के साथ-साथ दो सौ मीटर खाली पट्टी छोड़ी जानी चाहिए जिसमें केवल छोटी घास को उगने दिया जाय । दो सौ मीटर के बाद सड़क रहनी चाहिए । अपने अनुभव से मैं कह सकता हूं कि इस पट्टी पर जंगली जानवर अधिक देर रुकेगा और दर्शक उसका भलिभाति अध्ययन कर सकेंगे ।

पार्क में अस्थायी रूप से ठहरने वालों की संख्या काफी है । यहाँ पर बिच्छू, साँप और हिर्र जन्तु रहते ही हैं, यदि कोई दुर्घटना हो जाय तो यहाँ चिकित्सा की कोई व्यवस्था नहीं है । दुर्घटना के अलावा दर्शक बीमार भी पड़ सकते हैं । टूरिस्टों की सेवा में दिन रात रहने वाले स्टाफ के सदस्यों को तथा उनके बाल बच्चों को मैंने लू लग जाना, बुखार, खांसी, जुकाम, आंख दुखना, फोड़े आदि कष्टों से अकसर दुख पाते देखा है । ठिकाला में यदि एक डिस्पेंसरी खोल दी जाय तो इन सब का भला हो सकता है । पार्क के छोटे कर्मचारी भोंपड़ियों में रहते हैं । उनके लिए पक्के क्वार्टर बनाने चाहिए ।

वन्य पशुओं के जीवन का अध्ययन करने के उद्देश्य से हर साल काफी संख्या में विदेशी पर्यटक कौबेट नेशनल पार्क की यात्रा करते हैं । इन लोगों से भारत सरकार को विदेशी मुद्रा भी प्राप्त होती है । १९७५-७६ में दस हज़ार से अधिक दर्शक आये थे जिनमें लगभग दस प्रतिशत विदेशी थे । इस वर्ष पर्यटकों से पार्क को दो लाख चौदह हज़ार रुपये की आमदनी हुई । पार्क में वन्य जीवन का और संचार साधनों का विस्तार किया जाय तथा वहाँ रहन-सहन के खर्च को कम किया जाय तो मध्य वर्ग के लोग भी बड़ी संख्या में आकृष्ट हो सकते हैं । पार्क के ऊँचे खर्चों को देख कर जनसाधारण तो वहाँ जाने को सोच ही नहीं सकता । पार्क द्वारा वन्यजीवों का संरक्षण और संवर्द्धन राष्ट्रीय महत्व का कार्य है । इस उपयोगी कार्य में जनसाधारण की अभिरुचि पैदा करनी चाहिए, उन्हें वन्य जीवों को जंगलों में देखने के अवसर प्रदान करने चाहिए ।



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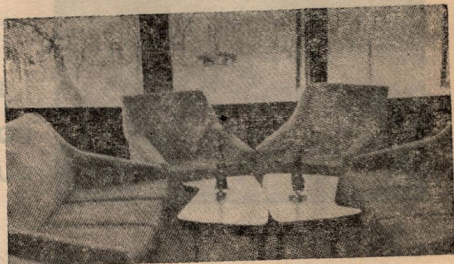


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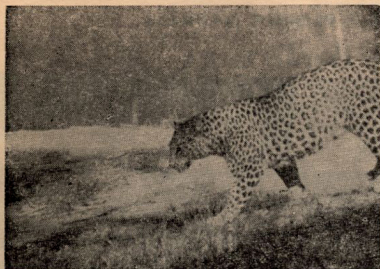
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- (c) To assist in enforcing and actively supporting the Forest Acts, Wild Birds and Animals Protection Acts and Rules etc. of States and the Indian Arms Act and Rules in so far as they pertain to wildlife and to bring to the notice of the authorities any infringement of the same and to assist in the detection and prosecution of offenders in respect of such laws.
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- (e) To raise funds for the carrying out of the above aims and objects and to found and maintain museums, reading rooms and libraries of natural history in order to disseminate knowledge regarding wildlife.
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